DOCUMENT RESUME

ED 110 811 CE 004 630

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TITLE The Effect of the Curriculum Calendar in Self-Paced, Individualized Instruction.
INSTITUTION Mountain-Plains Education and Economic Development Program, Inc., Glasgow AFB, Mont.
SPONS AGENCY National Inst. of Education (DHEW), Washington, D.C.
PUB DATE Jul 75
CONTRACT NE-C-00-3-0298
NOTE 24p.; For related document, see CE 004 631

EDRS PRICE MF-$0.76 HC-$1.58 Plus Postage
DESCRIPTORS *Continuous Progress Plan; Disadvantaged Groups; Flexible Schedules; *Individualized Curriculum; Individualized Instruction; *Office Occupations Education; Performance Factors; *School Calendars; Self Evaluation; *Student Evaluation
IDENTIFIERS *Mountain Plains Program

ABSTRACT

The study investigated the effect of weekly instructor monitoring of a curriculum calendar on student progress within the individualized, competency-based Mountain-Plains office education program. Subjects were adult members of disadvantaged families and included all Mountain-Plains students entering office education career preparation between November, 1974 and February, 1975. Students, unaware of the experiment, were randomly placed in an experimental (calendar) or a control (no calendar) group for a six-week period. Attendance and progress hours were recorded, with the rate of progress computed weekly for each student. For the experimental group, the instructor constructed, with the student, a curriculum calendar based on established average time to complete a given package. Design for the experiment was a post-test only control group design. The major conclusion of the study was that the curriculum calendar utilized with adults within a self-paced, individualized office education curriculum provides an effective method of significantly increasing the students' rate of progress. The majority of staff and students commented positively on the calendar; instructional time required for its use was not excessive. Likewise, the curriculum calendar was viewed as a valuable tool in minimizing student length of stay in the program, thus, improving cost benefit factors. (EA)

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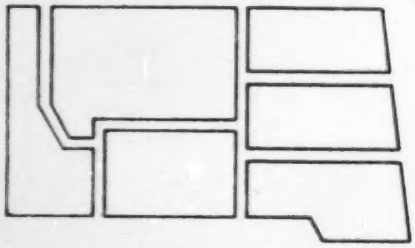

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THE EFFECT OF THE CURRICULUM CALENDAR IN SELF-PACED, INDIVIDUALIZED INSTRUCTION

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THE EFFECT OF THE CURRICULUM CALENDAR IN SELF-PACED, INDIVIDUALIZED INSTRUCTION

July 1975

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This Study is a Product of the
Educational Services Division

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The work presented herein was performed purauant to Contract #NE-C-00-3-0298. However, the opinions expressed herein do not necessarily reflect the position or policy of the National Institute of Education and no official endorsement by that agency should be inferred.

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THE EFFECT OF THE CURRICULUM CALENDAR IN SELF-PACED, INDIVIDUALIZED INSTRUCTION

INTRODUCTION

The value of helping students to set goals within an individualized educational system has been noted in the literature. In an article, "Is That All There Is To Individualized Instruction?" Robinson states,

> Motivation is essential because it initiates and gives direction to behavior which is organized to attain a goal. Goals set by the student himself provide stronger incentive than goals that are imposed. But because a student's level of aspiration often causes him to set practice goals that are 'out of sync' with his potential, teachers must guide learners in establishing goals that are sufficiently challenging but at the same time capable of attainment with reasonable effort.
>
> . . . Long-range hopes and generalized goals must be broken into specific short-range objectives that if attained will lead students to realistic aspiration levels . . . And such goals should be individualized according to each student's momentary learning need, current level of achievement, and likelihood of goal attainment. Furthermore, these goals must be adjusted and extended as students successfully reach them.[1]

Mountain-Plains, a family human development institution for disadvantaged families, includes a completely individualized curriculum and curriculum monitoring system. Mountain-Plains' monitoring of curriculum progress is accomplished for all students through a regular six-week review with the student by a student advisor utilizing a computer printout progress record.

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[1]Jerry W. Robinson, "Is That All There Is To Individualized Instruction?" The Balance Sheet, LVI, September, 1974, pp.5, 6.

In addition, some instructors provide regular monitoring of curriculum progress on a weekly basis through the construction and review with the student of a "curriculum calendar." This "curriculum calendar" is a listing of curriculum to be completed by the student by certain dates.

This study addresses the question, "Does weekly instructor monitoring of a curriculum calendar have a positive effect on student progress as assessed in one area of study in one institution, the Mountain-Plains Office Education program. Ths question becomes important in an individualized, competency based program such as Mountain-Plains when one realizes that rate of progress is the major variable in such a system. Achievement is, by definition, a constant. In competency based instruction, a minimum identified level of achievement has to be attained. Therefore, as students learn at different speeds, completion time has to vary in order that a pre-determined achievement criterion specific to the chosen career can be attained by everyone making a particular career choice. A student remains on a curricular unit until it is mastered. Tools to facilitate progress become valuable to the institution as programs attempt to reduce student length of stay in order to improve cost benefit factors and thus enable more students to attain "an education" within a given budget.

METHODOLOGY

Subjects: Subjects are adult members of disadvantaged families and include all Mountain-Plains students entering office education career preparation

between mid November, 1974, and mid February, 1975. For a detailed description of subjects see Myers et. al., (1975). All students entering the Office Education career preparation area were assigned to one of three instructors in the area (one of which was the investigator), and subsequently randomly placed into either an experimental (calendar) or a control (no calendar) group. Clerical majors were randomly assigned to two instructors, while bookkeeping and keypunch majors were assigned to a third instructor. Students participated in the experiment for six weeks, and their rate of progress was computed weekly. Students did not know they were participating in an experiment. If a student from the control group asked for a calendar, he was told to request one at the end of his first six-week period with an explanation appropriate to the situation. Such explanations were honest, with the exception of omission of the fact of the experiment, and reasonable. For example, students were told that staff was unable at present to work out a calendar for everyone, but that they could have a turn later if desired.

The investigator recorded both attended hours and progress hours, and computed the rate of progress weekly for each student in each group. Progress hours were obtained from the Student Progress Record[2] and attended hours

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[2]The Student Progress Record lists all LAP's and tests required for a major. The instructor's copy includes progress hours. Information compiled for each student on this form includes the date each LAP is started, the time spent in each LAP, the date each LAP is completed, and test scores.

were obtained from time cards which are kept and monitored weekly for all Mountain-Plains students. Curriculum completed by the student in each time period was noted from the Student's Progress Record.

To explore other variables seen as potentially important to decision-makers in determining whether to adopt the technique, student and staff preferences for either the use or nonuse of curriculum calendars were determined through a survey technique. Only the sixteen students who had worked both with and without the calendar for a minimum of three weeks at the time of the survey were included in the preference tabulations. (Survery forms are attached as Appendices B and C.) The purpose of this survey was to determine the acceptability of the calendar, student and staff perceptions of its effect, and staff perceptions as to the subsequent increase or decrease in their workload.

Experimental Treatment: The instructional approach at Mountain-Plains includes instruction by objectives and utilizes a fixed content, variable time, fixed competency, self-managed and self-paced curriculum developed for and/or by Mountain-Plains. Instruction and curriculum is individualized. Students may enter or leave each day and no two students within an area are likely to be at the same point in their program at the same time. Students are able to prevalidate portions of the curriculum based upon pretests and then advance through the remainder of the curriculum at their own speed.

Students in the control group and the experimental group were treated identi-

cally by the instructors including:

(1) A general orientation to Office Education is given to each student upon entering the area. Orientation included assignment of a desk, an examination of pretest scores and discussion of how they affected the student's program, a choice of which courses to begin study, detailed instruction in how to find materials and use Office Education equipment, and familiarization with department routines.

(2) The instructors advised the students on unit and course sequence and, when a new course was undertaken, on test content and sequence.

(3) The instructors gave the student general progress guidelines when a course was started. For example, "Normally I expect you to finish a typing lesson each day," or "Accounting chapters in Unit .01 usually average four hours."

(4) The same amount of instructor time was given each group.

(5) All questions were answered for the students with similar consideration as they progressed through the curriculum.

(6) Students from both groups received such positive reinforcement, as general greetings, informal checks on progress, and praise for each job well done.

The only deviation in treatment between the two groups was in the application of the experimental treatment.

After initial orientation to Office Education, students in the control group

monitored their own progress. Using the LAP's, the control group students decided how much time to spend on each curriculum package, when to take a test, and when to begin a new unit or a new course. For the experimental group, on the student's third class day in Office Education, the instructor constructed, with the student, a curriculum calendar based on established average time to complete a given LAP in relation to the student's scheduled hours in Office Education. The calendar covered approximately a three-week period. The instructor listed both specific LAP's to be completed on certain dates and unit pre- and post-tests to be completed on specific dates. (Where pretest scores were necessary before specific LAP's could be listed, the LAP's to be completed were added to the calendar at the time the pretest was scored. A sample curriculum calendar is attached as Appendix A.)

Each student's progress in relation to the calendar was reviewed by the instructor with the student every five class days for a six-week period. Upon review, if the LAP's and tests actually completed varied from the calendar by more than one day, or if the three-week period ended, a new calendar was constructed. Both LAP's and tests to be completed on the new calendar were based on the instructor's and student's combined judgment as to what was realistic optimum progress for the student.

Design: The design for the experiment was a post test only control group design. Results were analyzed with the two dimensional ANOVA blocking for control of teacher/area effects. The 0.05 confidence level was chosen for interpreting results.

Procedures: The dependent is "rate of curriculum progress". This was computed by dividing "progress hours" by "attended hours." "Progress hours" are the average time required of past students to complete each curriculum segment (curriculum at Mountain-Plains is by courses, units, and Learning Activity Packages). Attended hours are the actual number of hours during which the student was in attendance in Office Education and working on a curriculum segment. Weekly curriculum planning and monitoring with the student by the instructor through the use of a curriculum calendar was the experimental treatment.

RESULTS

Students with whom curriculum calendars were used were seen to progress more rapidly than are control students. (See Table 2.) This difference was not attributable to instructors, and no interaction was found. (See Table 1.)

During the first week, both groups progressed at approximately the same rate. Following the first week, the two groups began to diverge in rate of progress and the difference continued to increase--rather than leveling off. (See Figure 1.)

Student Preferences: Of the 16 students surveyed, 13 students preferred to work with a calendar, 2 preferred to work without a calendar, and 1 listed no preference. Representative comments of the thirteen students preferring to work with a calendar included, "A calendar helps me plan and organize my work better." "Working on a calendar tells me exactly where I'm at. I

know how much I have done and what I have left to do." "With a calendar I am more aware of the pace I should keep." The two students preferring not to work with a calendar commented, "I prefer to work without a calendar because I feel I must follow it and don't like to get behind," and "With a calendar I feel under pressure and without a calendar I can feel at ease doing my work."

Instructor Preferences: Approximately 50 percent of instruction time for the three instructors included the use of the calendar. The instructors reported the calendar was a useful technique in teaching students how to effectively organize their time--that because the students knew what curricula they were expected to finish by a certain date and had input into deciding which curriculum to work on at a given time and what curricula they could expect to finish, the calendar helped avoid such questions and concerns as "What should I do today?" "What should I do when I finish this unit?" or "Am I going fast enough?" One instructor thought the calendar would not be necessary for an intelligent, motivated student.

From the instructors' point of view, the calendar was helpful in monitoring student progress, and especially helpful at the end of the students' program when close monitoring to meet specific deadlines was required.[3] Two of the

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[3]Utilizing data from all parts of Mountain-Plains, the student's exit date is set approximately six weeks before estimated completion. As activities leading to exit are varied (post testing, applying for jobs, merit testing, interview trips, checking out of housing) and time lines must be met or changed well in advance, close monitoring is essential for smooth operation of the Mountain-Plains open entry/open exit model.

instructors felt they could handle more students with the use of the calendar; one instructor felt he could handle fewer.

TABLE 1

Means and Standard Deviations

	Calendar		No Calendar		Row Totals	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Teacher/Area 1	107.	11	73.5	38	90.3	32
Teacher/Area 2	90.7	22	76.1	14	83.4	14
Teacher/Area 3	90.2	13	68.3	17	79.2	18
Column Totals	96.0	17	72.6	24	--	--

TABLE 2

Analysis of Variance Summary Table

Source	SS	DF	MS	F
Columns	4,086	1	4,086	8.96*
Rows	621.3	2	311	.68
Interaction	457	2	229	.50
Within Cells	10,939	24	456	--
Total	16,426	29	--	--

*Denotes a statistically significant difference, $p \leq 0.01$.

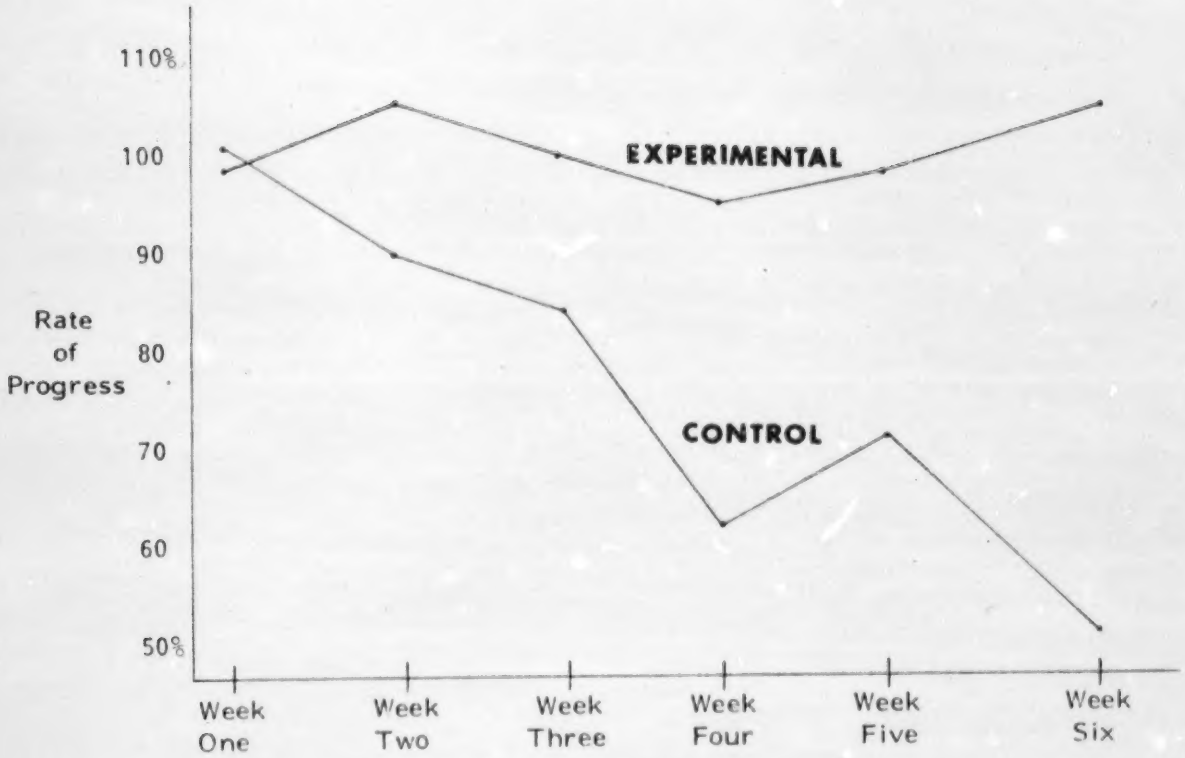

FIGURE 1

Weekly Rate of Progress

As noted in Figure 1, the curve for the experimental group approximated 100 percent progress for the entire six-week period. The 100 percent figure defines an average rate of progress based upon the completion times recorded by past students. The fact that the experimental group approximated this rate for the entire six weeks can be explained by noting that curriculum calendars were historically used with students.

The difference between progress rate for students on calendars and students not on calendars and the continuing increase in this difference as the weeks progressed is especially interesting. The short-lived recovery in the fifth week by the control group may have been caused by unconscious special attention by the instructors to assist students making "slow" progress. The overall continuing increase would suggest that the calendars may help students learn to plan their activities and organize their time with increasing effectiveness. That is, the calendars may themselves be a teaching device rather than simply a means for setting goals and organizing behavior.

The present cost per instructional hour in Office Educatior of $2.15 is based on a norm of 100 percent progress computed with the use of calendars. However, using the average difference in progress rates over the experimental period, there is some indication that students not utilizing the calendar were progressing only one-half to three-fourths the speed of the students on calendars. Based upon this assumption, students not using calendars would take more time to complete their program, therefore resulting in a significantly

increased cost per student within Office Education, not including the cost of other student support. One may conclude that curriculum calendars show a decided contribution toward efficiency of program operation.[4] Thus the technique is not only effective and economical, but it was seen to be popular with both instructors and students.

GENERAL OBSERVATIONS

There are several alternative explanations for the findings of this study. With a curriculum calendar, the student is taught, in concurrence with the instructor, to set realistic, short-term goals. Several of these goals may be achieved in a single day, thereby providing a positive reinforcement for success. By this method, the student learns to both set goals and achieve the increase in self-confidence from accomplishing goals. This leads to an increased rate of learning. To explain this increasing rate, one may speculate that the student is focusing behavior and reducing the interference caused by the anxiety of self-doubt and/or fear of the material. Further, although all students received external motivation from the instructor in the form of external positive reinforcement, only those students on the calendars received the internal reinforcement of accomplishing goals that they had helped to set. Consequently, these students may have developed an internal motivation, which as it increased, caused them to increase their level of effort.

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[4]A rough calculation indicates a yearly financial savings at peek enrollment of approximately one-third of the operating budget should all students in Office Education use calendars versus all students proceeding through the curriculum without structured guidance.

The difference in rate of progress may also illustrate a requirement in learner-centered instruction. Students should not be left on their own to make all decisions--a process which may have a dehumanizing effort, nor should their activities be strictly dictated by the instructor, as usually happens in the traditional classroom/lecture approach. Rather the student and instructor should be partners in learning. Within the requirements of the curriculum the day-to-day acitivities may be negotiated, with the student having real input to these decisions.

FORMATIVE IMPLICATIONS

The major conclusion of this study is that the curriculum calendar utilized with adults within a self-paced, fully individualized Office Education curriculum provides an effective method of significantly increasing the students' rate of progress. It was also observed that: 1) the great majority of both staff and students commented positively on the calendar, favoring its use; and 2) the instructional time required for its use was not excessive.

As utilized within learner-centered instruction--to which Mountain-Plains is committed--the curriculum calendar is seen to be a valuable tool both in minimizing student length of stay in the program (thereby improving cost benefit factors) and in enhancing the quality of the learning experience. It's expanded use, with concomitant evaluation, would seem worthy of pursuit in other Mountain-Plains curricular areas.

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Myers, D.D., Coyle, D.A., and Clark, C.R. Selected Pre-Center Characteristics (of Mountain-Plains Familes). Mountain-Plains: Glasgow, MT. July, 1975.

Robinson, Jerry W. "Is That All There Is To Individualized Instruction?" The Balance Sheet, LVI, September, 1974, pp. 5, 6.

APPENDIX

MONTH April - May

s	m	t	w	t	f	s
	28	29 Typing Prod. Test VII * SS →	30 Pretest Machine Trans. Elec. Calculator Test II	1 MT 01.02 EC 20	2 MT 02.03 EC 21	
	5 Final Filing MT 03.01 EC 22 SS →	6 Start Bus. W. MT 04.01 EC 23	7 MT 04.02 EC 24	8 MT Final EC 25	9 Finish Bus. W. 1, 2, and 3 EC 26	
	12 Bus. W. → SS → Final Elec. Calculator	13 Pretest Full Keyboard	14	15	16 Finish Bus. W. 4, 5, and 6	
	Shorthand ~~Each day~~ - ~~Read and write one~~ - Lesson in text - Appropriate workbook lesson - 20 minutes speed building on tapes Every Other Day - Live dictation - transcription					

APPENDIX A

APPENDIX B

Student Survey

Name _____

Occupational Choice _____

Approximately how many weeks were you on a calendar 173 weeks

Not on a calendar 137 weeks.

If you have worked both with and without a calendar, do you prefer to work

with a calendar 81%.

without a calendar 12%.

Explain why you prefer the choice you marked above.

APPENDIX C

Instructor Survey

Name _____

Area of Instruction _____

During the past six months, approximately what percentage of your instruction has included the use of a calendar _____?

Which do you believe is best for the student, a calendar _____.

no calendar _____.

Explain why.

Can you handle fewer _____, more _____, or the same _____, number of students with a calendar.